

THE ASTROPHYSICAL JOURNAL
CONTENTS OF VOLUME 685, PART 1

2008 SEPTEMBER 20, NUMBER 1

	<i>Page</i>
CONSTRAINTS ON FIRST-LIGHT IONIZING SOURCES FROM OPTICAL DEPTH OF THE COSMIC MICROWAVE BACKGROUND	1
<i>J. Michael Shull & Aparna Venkatesan</i>	
THE IMPACT OF HD COOLING ON THE FORMATION OF THE FIRST STARS	8
<i>Ian D. McGreer & Greg L. Bryan</i>	
THE FATE OF THE FIRST GALAXIES. III. PROPERTIES OF PRIMORDIAL DWARF GALAXIES AND THEIR IMPACT ON THE INTERGALACTIC MEDIUM	21
<i>Massimo Ricotti, Nickolay Y. Gnedin, & J. Michael Shull</i>	
RESOLVING THE FORMATION OF PROTOGALAXIES. III. FEEDBACK FROM THE FIRST STARS	40
<i>John H. Wise & Tom Abel</i>	
LENSING PROBABILITIES FOR SPECTROSCOPICALLY SELECTED GALAXY-GALAXY STRONG LENSES	57
<i>Gregory Dobler, Charles R. Keeton, Adam S. Bolton, & Scott Burles</i>	
COMPARISONS BETWEEN ISOTHERMAL AND NFW MASS PROFILES FOR STRONG-LENSING GALAXY CLUSTERS	70
<i>Chengyang Shu, Binglu Zhou, Matthias Bartelmann, Julia M. Comerford, J.-S. Huang, & Yannick Mellier</i>	
TOWARD UNDERSTANDING RICH SUPERCLUSTERS	83
<i>M. Einasto, E. Saar, V. J. Martinez, J. Einasto, L. J. Liivamägi, E. Tago, J.-L. Starck, V. Müller, P. Heinämäki, P. Nurmi, S. Paredes, M. Gramann, & G. Hütsi</i>	
NUMERICAL SIMULATIONS OF BUOYANCY INSTABILITIES IN GALAXY CLUSTER PLASMAS WITH COSMIC RAYS AND ANISOTROPIC THERMAL CONDUCTION	105
<i>Y. Rasera & B. Chandran</i>	
SUBSTRUCTURE AND SCATTER IN THE MASS-TEMPERATURE RELATIONS OF SIMULATED CLUSTERS	118
<i>David A. Ventimiglia, G. Mark Voit, Megan Donahue, & S. Ameglio</i>	
ENERGETICS OF X-RAY CAVITIES AND RADIO LOBES IN GALAXY CLUSTERS	128
<i>William G. Mathews & Fabrizio Brighenti</i>	
RX J1648.7+6109: WITNESSING THE FORMATION OF A MASSIVE GROUP/POOR CLUSTER AND ITS BRIGHTEST GALAXY	138
<i>Tesla E. Jeltema, John S. Mulchaey, & Lori M. Lubin</i>	
AGN DUSTY TORI. I. HANDLING OF CLUMPY MEDIA	147
<i>Maia Nenkova, Matthew M. Sirocky, Željko Ivezic, & Moshe Elitzur</i>	
AGN DUSTY TORI. II. OBSERVATIONAL IMPLICATIONS OF CLUMPINESS	160
<i>Maia Nenkova, Matthew M. Sirocky, Robert Nikutta, Željko Ivezic, & Moshe Elitzur</i>	
MOLECULAR GAS AND DUST IN ARP 94: THE FORMATION OF A RECYCLED GALAXY IN AN INTERACTING SYSTEM	181
<i>U. Lisenfeld, C. G. Mundell, E. Schinnerer, P. N. Appleton, & J. Allsopp</i>	
SEARCH FOR BLUE COMPACT DWARF GALAXIES DURING QUIESCEENCE	194
<i>J. Sánchez Almeida, C. Muñoz-Tuñón, R. Amorín, J. A. Aguerri, R. Sánchez-Janssen, & G. Tenorio-Tagle</i>	
UNDERSTANDING THE 8 μ m VERSUS $\text{Pa}\alpha$ RELATIONSHIP ON SUBARCSECOND SCALES IN LUMINOUS INFRARED GALAXIES	211
<i>Tania Diaz-Santos, Almudena Alonso-Herrero, Luis Colina, Christopher Packham, James T. Radomski, & Charles M. Telesco</i>	
HOW BINARY INTERACTIONS AFFECT SPECTRAL STELLAR POPULATION SYNTHESIS	225
<i>Zhongmu Li & Zhanwen Han</i>	
THE LUMINOSITY DEPENDENCE OF THE GALAXY MERGER RATE	235
<i>D. R. Patton & J. E. Atfield</i>	
EVIDENCE FOR PRIMORDIAL MASS SEGREGATION IN GLOBULAR CLUSTERS	247
<i>Holger Baumgardt, Guido De Marchi, & Pavel Kroupa</i>	

	Page
THE FLATTENED DARK MATTER HALO OF M31 AS DEDUCED FROM THE OBSERVED H I SCALE HEIGHTS <i>Arunima Banerjee & Chanda J. Jog</i>	254
IDENTIFYING STELLAR STREAMS IN THE FIRST RAVE PUBLIC DATA RELEASE <i>R. Klement, B. Fuchs, & H.-W. Rix</i>	261
MODELING CARBON CHAIN ANIONS IN L1527 <i>Nanase Harada & Eric Herbst</i>	272
TESTING FARADAY ROTATION ESTIMATES OF MAGNETIC FIELD STRENGTHS TOWARD DARK CLOUDS <i>Richard M. Crutcher & Thomas H. Troland</i>	281
TIME-RESOLVED AU-SCALE JETS TRACED BY MASERS IN THE IRAS 4A/B REGIONS OF NGC 1333 <i>Kevin B. Marvel, Bruce A. Wilking, Mark J. Claussen, & Alwyn Wootten</i>	285
STELLAR AND CIRCUMSTELLAR PROPERTIES OF THE PRE-MAIN-SEQUENCE BINARY GV TAU FROM INFRARED SPECTROSCOPY 	298
<i>Greg W. Doppmann, Joan R. Najita, & John S. Carr</i>	
NEW YOUNG BROWN DWARFS IN THE ORION MOLECULAR CLOUD 2/3 REGION 	313
<i>Dawn E. Peterson, S. T. Meyeth, K. L. Luhman, J. L. Pipher, J. R. Stauffer, D. Barrado y Navascués, J. C. Wilson, M. F. Skrutskie, M. J. Nelson, & J. D. Smith</i>	
MONITORING THE LARGE PROPER MOTIONS OF RADIO SOURCES IN THE ORION BN/KL REGION <i>Laura Gómez, Luis F. Rodriguez, Laurent Loinard, Susana Lizano, Christine Allen, Arcadio Poveda, & Karl M. Menten</i>	333
A SURVEY FOR N V ABSORPTION AT $z \approx z_{\text{GRB}}$ IN GRB AFTERGLOW SPECTRA: CLUES TO GAS NEAR THE PROGENITOR STAR 	344
<i>Jason X. Prochaska, Miroslava Dessauges-Zavadsky, Enrico Ramirez-Ruiz, & Hsiao-Wen Chen</i>	
A COSMOLOGY-INDEPENDENT CALIBRATION OF GAMMA-RAY BURST LUMINOSITY RELATIONS AND THE HUBBLE DIAGRAM 	354
<i>Nan Liang, Wei Ke Xiao, Yuan Liu, & Shuang Nan Zhang</i>	
THE RAPIDLY FLARING AFTERGLOW OF THE VERY BRIGHT AND ENERGETIC GRB 070125 	361
<i>Adria C. Updike, Josh B. Haislip, Melissa C. Nysewander, Andrew S. Fruchter, D. Alexander Kann, Sylvio Klose, Peter A. Milne, G. Grant Williams, Weikang Zheng, Carl W. Hergenrother, Jason X. Prochaska, Jules P. Halpern, Nestor Mirabal, John R. Thorstensen, Alexander J. van der Horst, Rhaana L. C. Starling, Judith L. Racusin, David N. Burrows, N. P. M. Kuin, Peter W. A. Roming, Eric Bellm, Kevin Hurley, Weidong Li, Alexei V. Filippenko, Cullen Blake, Dan Starr, Emilio E. Falco, Warren R. Brown, Xinyu Dai, Jinsong Deng, Liping Xin, Yudei Qiu, Jianyan Wei, Yuji Urata, Domenico Nanni, Elisabetta Maiorano, Eliana Palazzi, Giuseppe Greco, Corrado Bartolini, Adriano Guarneri, Adalberto Piccioni, Grazienta Pizzichini, Federica Terra, Kuntal Misra, B. C. Bhatt, G. C. Anupama, X. Fan, L. Jiang, Ralph A. M. J. Wijers, Daniel E. Reichart, Hala A. Eid, Ginger Bryngelson, Jason Puls, R. C. Goldthwaite, & Dieter H. Hartmann</i>	
THE 2175 Å DUST FEATURE IN A GAMMA-RAY BURST AFTERGLOW AT REDSHIFT 2.45	376
<i>T. Krühler, A. Küpcü Yoldaş, J. Greiner, C. Clemens, S. McBreen, N. Primak, S. Savaglio, A. Yoldaş, G. P. Szokoly, & S. Klose</i>	
EVENT-WEIGHTED TESTS FOR DETECTING PERIODICITY IN PHOTON ARRIVAL TIMES <i>Peter Bickel, Bas Kleijn, & John Rice</i>	384
NUCLEAR CONSTRAINTS ON THE MOMENTS OF INERTIA OF NEUTRON STARS 	390
<i>Aaron Worley, Plamen G. Krastev, & Bao-An Li</i>	
THE MOST MASSIVE PROGENITORS OF NEUTRON STARS: CXO J164710.2-455216 	400
<i>Krzysztof Belczynski & Ronald E. Taam</i>	
INTERACTION OF THE MAGNETOROTATIONAL INSTABILITY WITH HYDRODYNAMIC TURBULENCE IN ACCRETION DISKS 	406
<i>Jared C. Workman & Philip J. Armitage</i>	
"DARK MATTER" IN ACCRETION DISKS	418
<i>Steve B. Howell, D. W. Hoard, C. Brinkworth, S. Kafka, M. J. Walentosky, Frederick M. Walter, & T. A. Rector</i>	
THE ORBITAL PERIOD AND TIME-VARIABLE ASYMMETRIC ACCRETION DISK IN THE X-RAY BINARY MS 1603.6+2600 (=UW CORONAE BOREALIS)	428
<i>Paul A. Mason, Edward L. Robinson, Candace L. Gray, & Robert I. Hynes</i>	
X-RAY TIME VARIABILITY ACROSS THE ATOLL SOURCE STATES OF 4U 1636-53 	436
<i>D. Altamirano, M. van der Klis, M. Méndez, P. G. Jonker, M. Klein-Wolt, & W. H. G. Lewin</i>	
TRANSIENT HEAVY ELEMENT ABSORPTION SYSTEMS IN NOVAE: EPISODIC MASS EJECTION FROM THE SECONDARY STAR	451
<i>Robert Williams, Elena Mason, Massimo Della Valle, & Alessandro Ederoclite</i>	
INVESTIGATING ChaMPlane X-RAY SOURCES IN THE GALACTIC BULGE WITH MAGELLAN LDSS2 SPECTRA 	463
<i>Xavier Koenig, Jonathan E. Grindlay, Maureen van den Berg, Silas Laycock, Ping Zhao, JaeSub Hong, & Eric M. Schlegel</i>	
O VI OBSERVATIONS OF THE ONSET OF CONVECTION ZONES IN MAIN-SEQUENCE A STARS	478
<i>James E. Neff & Theodore Simon</i>	

CONTENTS

v

	<i>Page</i>
MOST DETECTS SPB_e PULSATIONS IN HD 127756 AND HD 217543: ASTEROSEISMIC ROTATION RATES INDEPENDENT OF $v \sin i$ © <i>C. Cameron, H. Saio, R. Kuschnig, G. A. H. Walker, J. M. Matthews, D. B. Guenther, A. F. J. Moffat, S. M. Rucinski, D. Sasselov, & W. W. Weiss</i>	489
A HIGH-RESOLUTION SPECTRUM OF THE HIGHLY MAGNIFIED BULGE G DWARF MOA-2006-BLG-099S © <i>Jennifer A. Johnson, B. Scott Gaudi, Takahiro Sumi, Ian A. Bond, & Andrew Gould</i>	508
INTERACTION OF CLOSE-IN PLANETS WITH THE MAGNETOSPHERE OF THEIR HOST STARS. I. DIFFUSION, OHMIC DISSIPATION OF TIME-DEPENDENT FIELD, PLANETARY INFLATION, AND MASS LOSS <i>Randall O. Laine, Douglas N. C. Lin, & Shawfeng Dong</i>	521
OBSERVABILITY OF THE GENERAL RELATIVISTIC PRECESSION OF PERIASTRA IN EXOPLANETS <i>Andrés Jordán & Gáspár Á. Bakos</i>	543
ON THE ECCENTRICITY DISTRIBUTION OF EXOPLANETS FROM RADIAL VELOCITY SURVEYS © <i>Yue Shen & Edwin L. Turner</i>	553
EVOLUTION OF MIGRATING PLANETS UNDERGOING GAS ACCRETION <i>Gennaro D'Angelo & Stephen H. Lubow</i>	560
TOWARD A DETERMINISTIC MODEL OF PLANETARY FORMATION. V. ACCUMULATION NEAR THE ICE LINE AND SUPER-EARTHS © <i>S. Ida & D. N. C. Lin</i>	584
CONVECTIVE DYNAMOS WITH PENETRATION, ROTATION, AND SHEAR <i>Steven M. Tobias, Fausto Cattaneo, & Nicholas H. Brummell</i>	596
RESONANT BEHAVIOR AND FLUCTUATING ENERGY STORAGE IN CORONAL LOOPS <i>G. Nigro, F. Malara, & P. Veltri</i>	606
STRONGLY BLUESHIFTED PHENOMENA OBSERVED WITH <i>HINODE</i> EIS IN THE 2006 DECEMBER 13 SOLAR FLARE <i>Ayumi Asai, Hirohisa Hara, Tetsuya Watanabe, Shinsuke Imada, Taro Sakao, Noriyuki Narukage, J. L. Culhane, & G. A. Doschek</i>	622
THE FILAMENT–MORETON WAVE INTERACTION OF 2006 DECEMBER 6 <i>Holly R. Gilbert, Antoun G. Daou, Daniel Young, Durgesh Tripathi, & David Alexander</i>	629
STRONG ANISOTROPIC MHD TURBULENCE WITH CROSS HELICITY <i>Benjamin D. G. Chandran</i>	646
A GLOBAL KINETIC MODEL FOR COMETARY COMAE: THE EVOLUTION OF THE COMA OF THE <i>ROSETTA</i> TARGET COMET CHURYUMOV-GERASIMENKO THROUGHOUT THE MISSION <i>Valeriy Tenishev, Michael Combi, & Björn Davidsson</i>	659
ERRATUM: “METALLICITY EFFECTS ON DUST PROPERTIES IN STARBURSTING GALAXIES” (ApJ, 678, 804 [2008]) <i>C. W. Engelbracht, G. H. Rieke, K. D. Gordon, J.-D. T. Smith, M. W. Werner, J. Moustakas, C. N. A. Willmer, & L. Vanzi</i>	678
ERRATUM: “SMALL-SCALE BEHAVIOR OF THE PHYSICAL CONDITIONS AND THE ABUNDANCE DISCREPANCY IN THE ORION NEBULA” (ApJ, 675, 389 [2008]) <i>Adal Mesa-Delgado, César Esteban, & Jorge García-Rojas</i>	679
2008 OCTOBER 1, NUMBER 2	
FROM PRIMORDIAL ^4He ABUNDANCE TO THE HIGGS FIELD <i>Josef M. Gaßner, Harald Lesch, & Hartmuth Arenhövel</i>	681
MAGNETOHYDRODYNAMICS OF POPULATION III STAR FORMATION <i>Masahiro N. Machida, Tomoaki Matsumoto, & Shu-ichi Inutsuka</i>	690
A HUBBLE AND SPITZER SPACE TELESCOPE SURVEY FOR GRAVITATIONALLY LENSED GALAXIES: FURTHER EVIDENCE FOR A SIGNIFICANT POPULATION OF LOW-LUMINOSITY GALAXIES BEYOND $z = 7$ © <i>Johan Richard, Daniel P. Stark, Richard S. Ellis, Matthew R. George, Eiichi Egami, Jean-Paul Kneib, & Graham P. Smith</i>	705
LENSED IMAGE ANGLES: NEW STATISTICAL EVIDENCE FOR SUBSTRUCTURE © <i>Liliya L. R. Williams, Patrick Foley, Damon Farnsworth, & Jason Beltler</i>	725
THE ROLE OF THE RADIAL ORBIT INSTABILITY IN DARK MATTER HALO FORMATION AND STRUCTURE © <i>Jillian M. Bellovary, Julianne J. Dalcanton, Arif Babul, Thomas R. Quinn, Ryan W. Maas, Crystal G. Austin, Liliya L. R. Williams, & Eric I. Barnes</i>	739
SUPERNOVAE IN EARLY-TYPE GALAXIES: DIRECTLY CONNECTING AGE AND METALLICITY WITH TYPE Ia LUMINOSITY <i>Joseph S. Gallagher, Peter M. Garnavich, Nelson Caldwell, Robert P. Kirshner, Saurabh W. Jha, Weidong Li, Mohan Ganeshalingam, & Alexei V. Filippenko</i>	752
OPTICAL TO NEAR-INFRARED SPECTRUM OF A MASSIVE EVOLVED GALAXY AT $z = 1.26$ <i>Y. Matsuoka, B. A. Peterson, S. Oyabu, K. Kawara, N. Asami, H. Sameshima, N. Ienaka, T. Nagayama, & M. Tamura</i>	767

	Page
ARE OPTICALLY SELECTED QUASARS UNIVERSALLY X-RAY LUMINOUS? X-RAY-UV RELATIONS IN SLOAN DIGITAL SKY SURVEY QUASARS © <i>Robert R. Gibson, W. N. Brandt, & Donald P. Schneider</i>	773
OBSCURING ACTIVE GALACTIC NUCLEI WITH NUCLEAR STARBURST DISKS <i>D. R. Ballantyne</i>	787
A POPULATION OF RADIO-LOUD NARROW-LINE SEYFERT 1 GALAXIES WITH BLAZAR-LIKE PROPERTIES? © <i>W. Yuan, H. Y. Zhou, S. Komossa, X. B. Dong, T. G. Wang, H. L. Lu, & J. M. Bai</i>	801
THE ESTIMATE OF KINETIC POWER OF JETS IN FR II RADIO GALAXIES: EXISTENCE OF INVISIBLE COMPONENTS? <i>Hirotaka Ito, Motoki Kino, Nozomu Kawakatu, Naoki Isobe, & Shoichi Yamada</i>	828
CHANDRA REVEALS TWIN X-RAY JETS IN THE POWERFUL FR II RADIO GALAXY 3C 353 © <i>J. Kataoka, L. Stawarz, D. E. Harris, A. Siemiginowska, M. Ostrowski, M. R. Swain, M. J. Hardcastle, J. L. Goodger, K. Iwasawa, & P. G. Edwards</i>	839
BENT-DOUBLE RADIO SOURCES AS PROBES OF INTERGALACTIC GAS <i>E. Freeland, R. F. Cardoso, & E. Wilcots</i>	858
THE RED SEQUENCE OF HIGH-REDSHIFT CLUSTERS: A COMPARISON WITH COSMOLOGICAL GALAXY FORMATION MODELS <i>N. Menci, P. Rosati, R. Gobat, V. Strazzullo, A. Rettura, S. Mei, & R. Demarco</i>	863
THE FUNDAMENTAL PLANE OF EARLY-TYPE GALAXIES IN NEARBY CLUSTERS FROM THE WINGS DATABASE © <i>M. D'Onofrio, G. Fasano, J. Varela, D. Bettoni, M. Moles, P. Kjærgaard, E. Pignatelli, B. Poggianti, A. Dressler, A. Cava, J. Fritz, W. J. Couch, & A. Omizzolo</i>	875
SAURON'S CHALLENGE FOR THE MAJOR MERGER SCENARIO OF ELLIPTICAL GALAXY FORMATION <i>Andreas Burkert, Thorsten Naab, Peter H. Johansson, & Roland Jesseit</i>	897
OUTLIERS FROM THE MASS-METALLICITY RELATION. I. A SAMPLE OF METAL-RICH DWARF GALAXIES FROM SDSS <i>Molly S. Peeples, Richard W. Pogge, & K. Z. Stanek</i>	904
RADIO CONTINUUM OBSERVATIONS OF THE CANDIDATE SUPERMASSIVE BLACK HOLE IN THE DWARF ELLIPTICAL VCC 128 <i>Pieter Buyle, Sten De Rijcke, Victor P. Debattista, Ignacio Ferreras, Anna Pasquali, Anil Seth, & Lorenzo Morelli</i>	915
THE CHANDRA ACIS SURVEY OF M33 (ChASEM33): INVESTIGATING THE HOT IONIZED MEDIUM IN NGC 604 <i>Ralph Tüllmann, Terrance J. Gaetz, Paul P. Plucinsky, Knox S. Long, John P. Hughes, William P. Blair, P. Frank Winkler, Thomas G. Pannuti, Dieter Breitschwerdt, & Parviz Ghavamian</i>	919
A DEEP SURVEY OF THE FORNAX dSph. I. STAR FORMATION HISTORY © <i>Matthew G. Coleman & Jelle T. A. de Jong</i>	933
VARIABLE STARS IN THE FORNAX dSph GALAXY. II. PULSATIN STARS BELOW THE HORIZONTAL BRANCH © <i>Ennio Poretti, Gisella Clementini, Enrico V. Held, Claudia Greco, Mario Mateo, Luca Dell'Arciprete, Luca Rizzi, Marco Gullieuszik, & Marcella Maio</i>	947
COMPARISON OF 3.6–8.0 μ m SPITZER/IRAC GALACTIC CENTER SURVEY POINT SOURCES WITH CHANDRA X-RAY POINT SOURCES IN THE CENTRAL 40 \times 40 PARSECS <i>R. G. Arendt, D. Y. Gezari, S. R. Stolovy, K. Sellgren, R. Smith, S. V. Ramirez, F. Yusef-Zadeh, C. J. Law, H. A. Smith, A. S. Cotera, & S. H. Moseley</i>	958
NONLINEAR GUIDING CENTER THEORY OF PERPENDICULAR DIFFUSION: DERIVATION FROM THE NEWTON-LORENTZ EQUATION <i>A. Shalchi & A. Dasch</i>	971
INFRARED ECHOES REVEAL THE SHOCK BREAKOUT OF THE CAS A SUPERNOVA <i>Eli Dwek & Richard G. Arendt</i>	976
STUDY OF NONTHERMAL EMISSION FROM SNR RX J1713.7–3946 WITH SUZAKU © <i>Takaaki Tanaka, Yasunobu Uchiyama, Felix A. Aharonian, Tadayuki Takahashi, Aya Bamba, Junko S. Hiraga, Jun Kataoka, Tetsuichi Kishishita, Motohide Kokubun, Koji Mori, Kazuhiro Nakazawa, Robert Petre, Hiroyasu Tajima, & Shin Watanabe</i>	988
SPITZER IRAC AND MIPS IMAGING OF CLUSTERS AND OUTFLOWS IN NINE HIGH-MASS STAR FORMING REGIONS © <i>Keping Qiu, Qizhou Zhang, S. Thomas Megeath, Robert A. Gutermuth, Henrik Beuther, Debra S. Shepherd, T. K. Sridharan, L. Testi, & C. G. De Pree</i>	1005
SiO SHOCKS OF THE PROTOSTELLAR JET HH 212: A SEARCH FOR JET ROTATION <i>Chin-Fei Lee, Paul T. P. Ho, Tyler L. Bourke, Naomi Hirano, Hsien Shang, & Qizhou Zhang</i>	1026
DETECTION OF C ₃ O IN THE LOW-MASS PROTOSTAR ELIAS 18 <i>M. E. Palumbo, P. Leto, C. Siringo, & C. Trigilio</i>	1033
SUBMILLIMETER OBSERVATIONS OF THE YOUNG LOW-MASS OBJECT IRAS 04158+2805 <i>Sean M. Andrews, Michael C. Liu, Jonathan P. Williams, & K. N. Allers</i>	1039
ON DUST EXTINCTION OF GAMMA-RAY BURST HOST GALAXIES <i>Aigen Li, S. L. Liang, D. A. Kann, D. M. Wei, S. Klose, & Y. J. Wang</i>	1046

CONTENTS

vii

	Page
BROADBAND LIGHT CURVE CHARACTERISTICS OF GRBs 980425 AND 060218 AND COMPARISON WITH LONG-LAG, WIDE-PULSE GRBS ② <i>Fu-Wen Zhang</i>	1052
LMC X-3 MAY BE A RELIC OF A GRB SIMILAR TO COSMOLOGICAL GRBS ② <i>Gerald E. Brown, Chang-Hwan Lee, & Enrique Moreno Méndez</i>	1063
TWO-DIMENSIONAL MULTIANGLE, MULTIGROUP NEUTRINO RADIATION-HYDRODYNAMIC SIMULATIONS OF POSTBOUNCE SUPERNOVA CORES <i>Christian D. Ott, Adam Burrows, Luc Dessimoz, & Eli Livne</i>	1069
EMPIRICAL ABUNDANCE SCALING LAWS AND IMPLICATIONS FOR THE GAMMA PROCESS IN CORE-COLLAPSE SUPERNOVAE <i>Takehito Hayakawa, Nobuyuki Iwamoto, Toshitaka Kajino, Toshiyuki Shizuma, Hideyuki Umeda, & Ken'ichi Nomoto</i>	1089
THE MOST MASSIVE CORE-COLLAPSE SUPERNOVA PROGENITORS ② <i>R. Waldman</i>	1103
QUASI-PERIODIC OSCILLATIONS IN CEN X-3 AND THE LONG-TERM INTENSITY VARIATIONS <i>Harsha Raichur & Biswajit Paul</i>	1109
A SWIFT GAZE INTO THE 2006 MARCH 29 BURST FOREST OF SGR 1900+14 ② <i>G. L. Israel, P. Romano, V. Mangano, S. Dall'Osso, G. Chincarini, L. Stella, S. Campana, T. Belloni, G. Tagliaferri, A. J. Blustin, T. Sakamoto, K. Hurley, S. Zane, A. Moretti, D. Palmer, C. Guidorzi, D. N. Burrows, N. Gehrels, & H. A. Krimm</i>	1114
CHANDRA OBSERVATIONS OF THE PULSAR B1929+10 AND ITS ENVIRONMENT <i>Z. Misanovic, G. G. Pavlov, & G. P. Garmire</i>	1129
CHANDRA LOCALIZATIONS AND SPECTRA OF INTEGRAL SOURCES IN THE GALACTIC PLANE <i>John A. Tomsick, Sylvain Chaty, Jerome Rodriguez, Roland Walter, & Philip Kaaret</i>	1143
A GLIMPSE INTO THE NATURE OF GALACTIC MID-IR EXCESSES <i>B. Uzpen, H. A. Kobulnicky, D. R. Semler, T. Bensby, & C. Thom</i>	1157
DISCOVERY OF A T DWARF BINARY WITH THE LARGEST KNOWN J-BAND FLUX REVERSAL ② <i>Dagny L. Looper, Christopher R. Gelino, Adam J. Burgasser, & J. Davy Kirkpatrick</i>	1183
GRAVITATIONAL INSTABILITIES, CHONDRULE FORMATION, AND THE FU ORIONIS PHENOMENON ② <i>Aaron C. Boley & Richard H. Durisen</i>	1193
EXTENT OF POLLUTION IN PLANET-BEARING STARS ② <i>S.-L. Li, D. N. C. Lin, & X.-W. Liu</i>	1210
ANGULAR MOMENTUM ACCRETION ONTO A GAS GIANT PLANET <i>Masahiro N. Machida, Eiichiro Kokubo, Shu-ichiro Inutsuka, & Tomoaki Matsumoto</i>	1220
RANGES OF ATMOSPHERIC MASS AND COMPOSITION OF SUPER-EARTH EXOPLANETS ② <i>Linda T. Elkins-Tanton & Sara Seager</i>	1237
FORMATION AND ACCRETION HISTORY OF TERRESTRIAL PLANETS FROM RUNAWAY GROWTH THROUGH TO LATE TIME: IMPLICATIONS FOR ORBITAL ECCENTRICITY <i>Ryuji Morishima, Max W. Schmidt, Joachim Stadel, & Ben Moore</i>	1247
PLASMA FLOWS GUIDED BY STRONG MAGNETIC FIELDS IN THE SOLAR CORONA <i>Eckart Marsch, Hui Tian, Jian Sun, Werner Curdt, & Thomas Wiegelmüller</i>	1262
THE OFF-DISK THERMAL STRUCTURE OF A POLAR CORONAL HOLE <i>Enrico Landi</i>	1270
SOLAR OBSERVATIONS OF HIGH-TEMPERATURE EMISSION WITH THE EXTREME-ULTRAVIOLET IMAGING SPECTROMETER ON HINODE <i>Harry P. Warren, Uri Feldman, & Charles M. Brown</i>	1277
DAMPING OF SLOW MHD CORONAL LOOP OSCILLATIONS BY SHOCKS <i>E. Verwichte, M. Haynes, T. D. Arber, & C. S. Brady</i>	1286
A ROBUST CORRELATION BETWEEN GROWTH RATE AND AMPLITUDE OF SOLAR CYCLES: CONSEQUENCES FOR PREDICTION METHODS <i>R. Cameron & M. Schüssler</i>	1291
GRAVITATIONAL LENSING CHARACTERISTICS OF THE TRANSPARENT SUN ② <i>Bijunath Patla & Robert J. Nemiroff</i>	1297
PULSAR TIMING AS A PROBE OF NON-EINSTEINIAN POLARIZATIONS OF GRAVITATIONAL WAVES <i>K. J. Lee, F. A. Jenet, & Richard H. Price</i>	1304
ERRATUM: "GROUPS OF GALAXIES IN THE TWO MICRON ALL SKY REDSHIFT SURVEY" (ApJ, 655, 790 [2007]) <i>Aidan C. Crook, John P. Huchra, Nathalie Martimbeau, Karen L. Masters, Tom Jarrett, & Lucas M. Macri</i>	1320
ERRATUM: "ATMOSPHERIC CIRCULATION OF HOT JUPITERS: THREE-DIMENSIONAL CIRCULATION MODELS OF HD 209458b AND HD 189733b WITH SIMPLIFIED FORCING" (ApJ, 682, 559 [2008]) <i>Adam P. Showman, Curtis S. Cooper, Jonathan J. Fortney, & Mark S. Marley</i>	1324

THE ASTROPHYSICAL JOURNAL LETTERS

CONTENTS OF VOLUME 685, PART 2

2008 SEPTEMBER 20, NUMBER 1

	Page
A CONFIRMATION OF THE STRONG CLUSTERING OF DISTANT RED GALAXIES AT $2 < z < 3$ (E) Ryan F. Quadri, Rik J. Williams, Kyoung-Soo Lee, Marijn Franx, Pieter van Dokkum, and Gabriel B. Brammer	L1
OBSERVATIONS OF THE GAS RESERVOIR AROUND A STAR-FORMING GALAXY IN THE EARLY UNIVERSE (E) Brenda L. Frye, David V. Bowen, Mairead Hurley, Todd M. Tripp, Xiaohui Fan, Bradford Holden, Puragra Guhathakurta, Dan Coe, Tom Broadhurst, Eiichi Egami, and G. Meylan	L5
COMPARISON OF CLUSTER LENSING PROFILES WITH Λ CDM PREDICTIONS Tom Broadhurst, Keiichi Umetsu, Elinor Medezinski, Masamune Oguri, and Yoel Rephaeli	L9
A PILOT SURVEY OF H I IN FIELD GALAXIES AT REDSHIFT $z \sim 0.2$ (E) Barbara Catinella, Martha P. Haynes, Riccardo Giovanelli, Jeffrey P. Gardner, and Andrew J. Connolly	L13
PRECURSORS IN SWIFT GAMMA RAY BURSTS WITH REDSHIFT D. Burlon, G. Ghirlanda, G. Ghisellini, D. Lazzati, L. Nava, M. Nardini, and A. Celotti	L19
VERY HIGH ENERGY GAMMA-RAY OBSERVATIONS OF STRONG FLARING ACTIVITY IN M87 IN 2008 FEBRUARY J. Albert, E. Aliu, H. Anderhub, L. A. Antonelli, P. Antonanz, M. Backes, C. Baixeras, J. A. Barrio, H. Bartko, D. Bastieri, J. K. Becker, W. Bednarek, K. Berger, E. Bernardini, C. Bigongiari, A. Biland, R. K. Bock, G. Bonnoli, P. Bordas, V. Bosch-Ramon, T. Bretz, I. Britvitch, M. Camara, E. Carmona, A. Chilingarian, S. Commichau, J. L. Contreras, J. Cortina, M. T. Costado, S. Covino, V. Curtef, F. Dazzi, A. De Angelis, E. De Cea del Pozo, R. de los Reyes, B. De Lotto, M. De Maria, F. De Sabata, C. Delgado Mendez, A. Dominguez, D. Dorner, M. Doro, M. Errando, M. Fagioli, D. Ferenc, E. Fernandez, R. Firpo, M. V. Fonseca, L. Font, N. Galante, R. J. Garcia Lopez, M. Garczarczyk, M. Gaug, F. Goebel, M. Hayashida, A. Herrero, D. Hohne, J. Hove, C. C. Hsu, S. Huber, T. Joger, D. Kranich, A. La Barbera, A. Laille, E. Leonardo, E. Lindfors, S. Lombardi, F. Longo, M. Lopez, E. Lorenz, P. Majumdar, G. Maneva, N. Mankuzhiyil, K. Mannheim, L. Maraschi, M. Mariotti, M. Martinez, D. Mazin, M. Meucci, M. Meyer, J. M. Miranda, R. Mirzoyan, S. Mizobuchi, M. Moles, A. Moralejo, D. Nieto, K. Nilsson, J. Ninkovic, N. Otte, I. Oya, M. Pannier, R. Paoletti, J. M. Paredes, M. Pasanen, D. Pascoli, F. Pauwels, R. G. Pegna, M. A. Perez-Torres, M. Persic, L. Peruzzo, A. Piccioli, F. Prada, E. Prandini, N. Puchades, A. Raymers, W. Rhode, M. Ribó, J. Rico, M. Rissi, A. Robert, S. Rügamer, A. Saggion, T. Y. Saito, M. Salvati, M. Sanchez-Conde, P. Sartori, K. Satalecka, V. Scalzotto, V. Scapin, T. Schweizer, M. Shayduk, K. Shinozaki, S. N. Shore, N. Sidro, A. Sierpowska-Bartosik, A. Sillanpää, D. Sobczynska, F. Spanier, A. Stamer, L. S. Stark, L. Takalo, F. Tavecchio, P. Temnikov, D. Tescaro, M. Teshima, M. Tluczykont, D. F. Torres, N. Turini, H. Vankov, A. Venturini, V. Vitale, R. M. Wagner, W. Wittek, V. Zabalza, F. Zandanel, R. Zanin, and J. Zapatero	L23
HIGH-REDSHIFT GALAXY KINEMATICS: CONSTRAINTS ON MODELS OF DISK FORMATION Brant E. Robertson and James S. Bullock	L27
STABILITY OF GALACTIC GAS DISKS AND THE FORMATION OF MASSIVE CLUSTERS (E) Andrés Escala and Richard B. Larson	L31
TRACING HIGH-DENSITY GAS IN M82 AND NGC 4038 E. Bayet, C. Lintott, S. Viti, J. Martin-Pintado, S. Martín, D. A. Williams, and J. M. C. Rawlings	L35
UBIQUITOUS WATER MASERS IN NEARBY STAR-FORMING GALAXIES Jeremy Darling, Crystal Brogan, and Kelsey Johnson	L39
UNCOVERING EXTREMELY METAL-POOR STARS IN THE MILKY WAY'S ULTRAFaint DWARF SPHEROIDAL SATELLITE GALAXIES (E) Evan N. Kirby, Joshua D. Simon, Marla Geha, Puragra Guhathakurta, and Anna Frebel	L43
"SLOW" AND FAST ROTATORS AMONG HYPERVELOCITY STARS (E) Mercedes López-Morales and Alceste Z. Bonanos	L47
SPITZER'S MID-INFRARED VIEW ON AN OUTER-GALAXY INFRARED DARK CLOUD CANDIDATE TOWARD NGC 7538 W. F. Frieswijk, M. Spaans, R. F. Shipman, D. Teyssier, S. J. Carey, and A. G. G. M. Tielens	L51
EVIDENCE FOR THE NAPHTHALENE CATION IN A REGION OF THE INTERSTELLAR MEDIUM WITH ANOMALOUS MICROWAVE EMISSION S. Iglesias-Groth, A. Manchado, D. A. García-Hernández, J. I. González Hernández, and D. L. Lambert	L55
X-RAY EMISSION FROM A SUPERMASSIVE BLACK HOLE EJECTED FROM THE CENTER OF A GALAXY (E) Yutaka Fujita	L59
NONTHERMAL HIGH-ENERGY EMISSIONS FROM BLACK HOLES BY A RELATIVISTIC CAPILLARY EFFECT Maurice H. P. M. van Putten	L63
EXTREMELY HIGH PRECISION VLBI ASTROMETRY OF PSR J0437-4715 AND IMPLICATIONS FOR THEORIES OF GRAVITY A. T. Deller, J. P. W. Verbiest, S. J. Tingay, and M. Bailes	L67

FIRST BOUNDS ON THE HIGH-ENERGY EMISSION FROM ISOLATED WOLF-RAYET BINARY SYSTEMS	L71
E. Aliu, H. Anderhub, L. A. Antonelli, P. Antoranz, M. Backes, C. Baixeras, J. A. Barrio, H. Bartko, D. Bastieri, J. K. Becker, W. Bednarek, K. Berger, E. Bernardini, C. Bigongiari, A. Biland, R. K. Bock, G. Bonnoli, P. Bordas, V. Bosch-Ramon, T. Bretz, I. Britvitch, M. Camara, E. Carmona, A. Chilingarian, S. Commichau, J. L. Contreras, J. Cortina, M. T. Costado, S. Covino, V. Cutri, F. Dazzi, A. De Angelis, E. De Cea del Pozo, R. de los Reyes, B. De Lotto, M. De Maria, F. De Sabata, C. Delgado Mendez, A. Dominguez, D. Dorner, M. Doro, M. Errando, M. Fagioli, D. Ferenc, E. Fernandez, R. Firpo, M. V. Fonseca, L. Font, N. Galante, R. J. Garcia Lopez, M. Garczarczyk, M. Gaug, F. Goebel, M. Hayashida, A. Herrero, D. Hohne, J. Hose, C. C. Hsu, S. Huber, T. Jogler, D. Kranich, A. La Barbera, A. Laille, E. Leonardo, E. Lindfors, S. Lombardi, F. Longo, M. Lopez, E. Lorenz, P. Majumdar, G. Maneva, N. Mankuzhiyil, K. Mannheim, L. Maraschi, M. Mariotti, M. Martinez, D. Mazin, M. Meucci, M. Meyer, J. M. Miranda, R. Mirzoyan, M. Moles, A. Moralejo, D. Nieto, K. Nilsson, J. Ninkovic, E. Oria-Wilhelmi, N. Otte, I. Oya, R. Paoletti, J. M. Paredes, M. Pasanen, D. Pascoli, F. Pauss, R. G. Pegna, M. A. Perez-Torres, M. Persic, L. Peruzzo, A. Piccioli, F. Prada, E. Prandini, N. Puchades, A. Raymers, W. Rhode, M. Ribó, J. Rico, M. Rissi, A. Robert, S. Rügamer, A. Saggion, T. Y. Saito, M. Salvati, M. Sanchez-Conde, P. Sartori, K. Satalecka, V. Scalzotto, V. Scapin, T. Schweizer, M. Shayduk, K. Shinozaki, S. N. Shore, N. Sidro, A. Sierpowska-Bartosik, A. Sillanpää, D. Sobczynska, F. Spanier, A. Stamer, L. S. Stark, L. Takalo, F. Tavecchio, P. Temnikov, D. Tescaro, M. Teshima, M. Tluczykont, D. F. Torres, N. Turini, H. Vankov, A. Venturini, V. Vitalie, R. M. Wagner, W. Wittek, V. Zabalza, F. Zandanel, R. Zanin, and J. Zapatero	L71
A RED SUPERGIANT NEBULA AT 25 μ m: ARCSECOND-SCALE MASS-LOSS ASYMMETRIES OF μ CEPHEI	L75
W. J. de Wit, R. D. Oudmaijer, T. Fujiiyoshi, M. G. Hoare, M. Honda, H. Kataza, T. Miyata, Y. K. Okamoto, T. Onaka, S. Sako, and T. Yamashita	L75
ULTRARELATIVISTIC ELECTRONS IN JUPITER'S INNER MAGNETOSPHERE: FIRST OBSERVATION OF ANGULAR DISTRIBUTIONS IN THE 2.5 TO 6 R_J REGION	L79
Saeed Taherion, Thomas P. Armstrong, and Henry B. Garrett	L79
POSSIBLE DRIVING FORCE BEHIND FORMATION OF COSMIC CARBYNE CRYSTALS	L83
Yuki Kimura and Chihiro Kaito	L83
PARALLEL MOTIONS OF CORONAL HARD X-RAY SOURCE AND $H\alpha$ RIBBONS	㊂ L87
Jeongwoo Lee and Dale E. Gary	L87
INVESTIGATION INTO THE SUBSURFACE MAGNETIC STRUCTURE IN AN EMERGING FLUX REGION ON THE SUN BASED ON A COMPARISON BETWEEN <i>HIKODE</i> 'S OBSERVATIONS AND NUMERICAL SIMULATIONS	L91
T. Magara	L91
EXPERIMENTAL EVIDENCE FOR RADIATIVE ATTACHMENT IN ASTROCHEMISTRY FROM ELECTRON ATTACHMENT TO NCCCCN	L95
K. Graupner, T. A. Field, and G. C. Saunders	L95
INSTRUCTIONS TO AUTHORS OF LETTERS, AND ADDITIONAL USEFUL INFORMATION	Inside Back Cover
INSTRUCTIONS FOR ELECTRONIC MANUSCRIPT SUBMISSION	Back Cover
2008 OCTOBER 1, NUMBER 2	
EDITORIAL	Page L99
STELLAR STRUCTURE OF DARK STARS: A FIRST PHASE OF STELLAR EVOLUTION RESULTING FROM DARK MATTER ANNIHILATION	L101
Katherine Freese, Peter Bodenheimer, Douglas Spolyar, and Paolo Gondolo	L101
ERASING DARK MATTER CUSPS IN COSMOLOGICAL GALACTIC HALOS WITH BARYONS	㊂ L105
Emilio Romano-Díaz, Isaac Shlesman, Yehuda Hoffman, and Clayton Heller	L105
DIFFERENCE IN NARROW-EMISSION-LINE SPECTRA OF SEYFERT 1 AND 2 GALAXIES	㊂ L109
Kai Zhang, Tinggui Wang, Xiaobo Dong, and Honglin Lu	L109
SPITZER/MIPS 24 μ m OBSERVATIONS OF GALAXY CLUSTERS: AN INCREASING FRACTION OF OBSCURED STAR-FORMING MEMBERS FROM $z = 0.02$ TO $z = 0.83$	㊂ L113
Amélie Saintonge, Kim-Vy H. Tran, and Bradford P. Holden	L113
GALEX SPECTROSCOPY OF SN 2005ay SUGGESTS ULTRAVIOLET SPECTRAL UNIFORMITY AMONG TYPE II-P SUPERNOVAE	L117
A. Gal-Yam, F. Bufano, T. A. Barlow, E. Baron, S. Benetti, E. Cappellaro, P. J. Challis, R. S. Ellis, A. V. Filippenko, R. J. Foley, D. B. Fox, M. Hick, R. P. Kirshner, D. C. Leonard, W. Li, D. Maoz, T. Matheson, P. A. Mazzali, M. Modjaz, K. Nomoto, E. O. Ofek, J. D. Simon, T. A. Small, G. P. Smith, M. Turatto, S. D. Van Dyk, and L. Zampieri	L117
THE EXTENDED STAR FORMATION HISTORY OF THE ANDROMEDA SPHEROID AT 35 kpc ON THE MINOR AXIS	L121
Thomas M. Brown, Rachael Beaton, Masashi Chiba, Henry C. Ferguson, Karoline M. Gilbert, Puragra Guhathakurta, Masanori Iye, Jason S. Kalirai, Andreas Koch, Yutaka Komiyama, Steven R. Majewski, David B. Reitze, Alvio Renzini, R. Michael Rich, Ed Smith, Allen V. Sriegart, and Mikito Tanaka	L121
PRESENT-DAY STAR FORMATION AT HIGH GALACTIC ALTITUDE: THE TIDAL ENCOUNTER PARADIGM	L125
R. de la Fuente Marcos and C. de la Fuente Marcos	L125

CONTENTS

v

PROTON-RICH NUCLEAR STATISTICAL EQUILIBRIUM <i>I. R. Seitenzahl, F. X. Timmes, A. Marin-Laffèche, E. Brown, G. Magkotsios, and J. Truran</i>	L129
CONSTRAINING THE SURFACE INHOMOGENEITY AND SETTLING TIMES OF METALS ON ACCRETING WHITE DWARFS (E) <i>M. H. Montgomery, S. E. Thompson, and T. von Hippel</i>	L133
UNCOVERING THE NATURE OF NOVA JETS: A RADIO IMAGE OF HIGHLY COLLIMATED OUTFLOWS FROM RS OPHIUCHI <i>J. L. Sokoloski, M. P. Rupen, and A. J. Mioduszewski</i>	L137
TURBULENT ENTRAINMENT IN MIRA'S COMETARY TAIL <i>A. C. Raga and J. Cantó</i>	L141
DYNAMICS AND FORECASTING OF TWO CHAOTIC STARS (E) <i>P.-M. Binder, I. J. Crosson, and R. R. Cadmus Jr.</i>	L145
ON THE IMPORTANCE OF THE INTERCLUMP MEDIUM FOR SUPERIONIZATION: O VI FORMATION IN THE WIND OF ζ PUPPIIS <i>J. Zsargó, D. J. Hillier, J.-C. Bouret, T. Lanz, M. A. Leutenegger, and D. H. Cohen</i>	L149
POSSIBILITY OF DETECTING MOONS OF PULSAR PLANETS THROUGH TIME-OF-ARRIVAL ANALYSIS <i>Karen M. Lewis, Penny D. Sackett, and Rosemary A. Mardling</i>	L153
FIRST RESULTS FROM THE TAIWANESE-AMERICAN OCCULTATION SURVEY (TAOS) <i>Z.-W. Zhang, F. B. Bianco, M. J. Lehner, N. K. Coehlo, J.-H. Wang, S. Mondal, C. Alcock, T. Axelrod, Y.-I. Byun, W. P. Chen, K. H. Cook, R. Dave, I. de Pater, R. Porrata, D.-W. Kim, S.-K. King, T. Lee, H.-C. Lin, J. J. Lissauer, S. L. Marshall, P. Protopapas, J. A. Rice, M. E. Schwamb, S.-Y. Wang, and C.-Y. Wen</i>	L157
ROTATION-RESOLVED SPECTROSCOPY OF A VERY YOUNG ASTEROID, (1270) DATURA (E) <i>Naruhisa Takato</i>	L161
SOLVING THE 90° SCATTERING PROBLEM IN ISOTROPIC TURBULENCE <i>R. C. Tautz, A. Shalchi, and R. Schlickeiser</i>	L165
INSTRUCTIONS TO AUTHORS OF LETTERS, AND ADDITIONAL USEFUL INFORMATION	<i>Inside Back Cover</i>
INSTRUCTIONS FOR ELECTRONIC MANUSCRIPT SUBMISSION	<i>Back Cover</i>